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URINARY ISOPROSTANES PREDICT VASCULAR EVENTS IN PATIENTS WITH ATRIAL FIBRILLATION: A PROSPECTIVE STUDY

Poster Contributions
Hall C
Monday, March 31, 2014, 9:45 a.m.-10:30 a.m.

Session Title: Arrhythmias and Clinical EP: New Observations on Pathophysiology of Atrial Fibrillation
Abstract Category: 4. Arrhythmias and Clinical EP: AF/SVT
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Background: Limited prospective data evaluated the role of urinary isoprostanes as a predictive markers in AF; moreover only recently NOX2 was identified as a relevant enzymatic system involved in isoprostanes formation. The aim of the study is to analyse the role of urinary F2-isoprostanes (F2-IsoP) and NOX2, markers of systemic oxidative stress, in predicting cardiovascular events (CV) and mortality in anticoagulated non-valvular atrial fibrillation (AF) patients.

Methods: This prospective study included 1002 anticoagulated patients with AF, followed for a median time of 25.7 months (IQR: 14.8-50.9). All major CV events, CV deaths and all-cause deaths were considered as primary outcome of the study. CV events included fatal/nonfatal ischemic stroke, fatal/nonfatal myocardial infarction (MI), cardiac revascularization and transient ischemic attack (TIA). Urinary 8-iso-PGF2α-III and serum sNOX2-dp, a marker of NOX2 activation, were measured in each patient.

Results: A CV event occurred in 125 patients (12.5%), including 13 MI, 18 fatal MI, 13 cardiac revascularization, 18 ischemic stroke, 9 fatal ischemic stroke, 3 TIA and 51 vascular deaths. A total of 109 deaths, 78 CV deaths and 31 non-CV deaths, was registered. F2-IsoP and sNOX2-dp were correlated (Rs=0.765 p<0.001). A significant increased rate of CV events, CV deaths and all-cause deaths was observed across tertiles both for F2-IsoP and sNOX2-dp. On Cox regression analysis, F2-IsoP independently predicted CV events and CV and non-CV deaths. The addition of tertiles of F2-IsoP to CHA2DS2-VASc score improved ROC curves for each outcome and NRI for CV events (0.24 [0.06-0.53] p=0.0067).

Conclusions: The study shows that in AF patients F2-IsoP and NOX2 levels are predictive of CV events and total mortality. Analysis of F2-IsoP may be a potentially useful marker to stratify the risk of CV events in AF population.